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ABSTRACT

Designed for education policymakers, members of educational and political organizations, representatives of business and industry, and other groups and individuals who are concerned with helping young people and adults to better understand and cope with multi-faceted energy problems, this handbook: (1) addresses the need for energy education, (2) indicates the advantage of a policy basis for energy education, and (3) offers assistance for persons in developing appropriate energy education policies. The handbook is divided into two major sections. Section one builds a case for comprehensive state and local energy education policies by defining energy education and examining the need for energy education and related policies. Section two outlines nine steps involved in this policy development and implementation process and discusses who makes policies and what obstacles impede the process. The last section identifies other related issues. (Author/DC)

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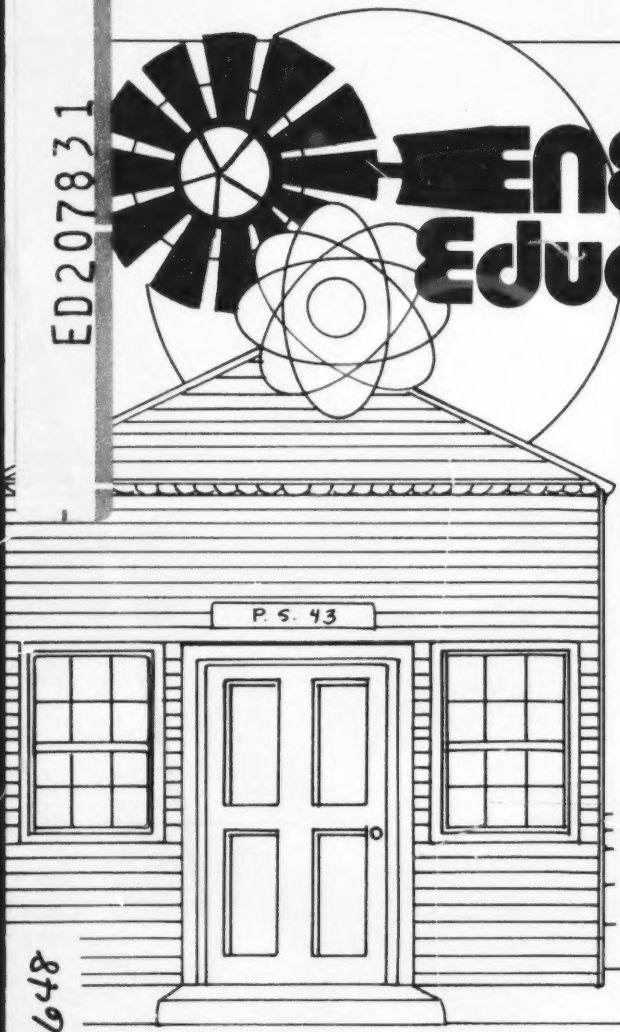

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Education Commission of the States

A policy development handbook

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(Continued on inside back cover)

Energy Education:

A Policy Development Handbook

Report No. 142

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August 1981

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Preface

The purposes of *Energy Education: A Policy Development Handbook* are threefold: (1) to indicate the need for energy education, (2) to state the advantage of a policy basis for energy education and (3) to assist persons in developing appropriate energy education policies. The handbook is divided into two major sections. The first builds the case for comprehensive state and local energy education policies, and the second describes a policy development and implementation process.

The publication is designed for education policymakers, members of education and political organizations, representatives of business and industry, and other groups and individuals concerned with assisting young people and adults to understand and cope with the multi-faceted energy problems we all face. While political officials generally are knowledgeable concerning the policy development process, they can benefit from the explanation of energy education, how it can be aided by policy formulation, and the application of the policy development process to energy education. Many educators and energy experts may have less need for the explanation of energy education but may benefit more from the description of policy formulation. Readers are therefore invited to use the handbook as a tool to meet individual needs – to use it in its entirety or to select only those portions that are of interest.

A companion publication, *Energy Education: Why, What and How*, provides additional information about the content of energy education and alternative implementation strategies. Readers are invited to refer to this second document as they use the handbook.

Energy Education: A Policy Development Handbook has been prepared under the auspices of the State Energy Education Project at the Education Commission of the States. The project, funded through Grant Number DE-FG05-80IR10903 from the U.S. Department of Energy, was designed to help states develop and implement energy education policies and programs. The State Energy Education Task Force, chaired by the Honorable Richard

D. Lamm, Governor of Colorado, has provided guidance to staff in carrying out project activities and has assisted in the development of this publication. (Task Force members and alternates are listed on the inside covers.)

I. The Case for Comprehensive State and Local Energy Education Policies

What Is Energy Education?

The purpose of energy education is to enable people to understand basic energy concepts and to make informed decisions regarding energy conservation, development and utilization with an understanding of options and consequences. The following six objectives and associated topics comprise a comprehensive energy education program that meets this general goal.

1. **To enable people to understand the nature and importance of energy.**
   a. Energy forms (heat, light and motion) and states (potential and kinetic).
   b. Energy sources (depletable and renewable).
   c. Energy uses (heating, cooling, manufacturing, transportation, lighting, etc.).
   d. Energy flows (extraction, distribution, use and dispersal).

2. **To provide information about changing supply and demand factors for various energy sources.**
   a. Historical trends.
   b. Present conditions.
   c. Future possibilities.
   d. Mathematical implications of growth.

3. **To prepare people to consider the individual and societal implications of different energy sources at the local, regional, national and international levels.**
   a. Economic implications.
      (1) Supply, demand and price of energy and related goods and services.
      (2) Employment ramifications.
   b. Political implications.
      (1) Domestic.
      (2) International.

(3) National security.

c. Social/lifestyle implications for various sectors of society.

d. Environmental impacts.

e. Scientific and technological considerations.
   (1) Centralized and decentralized production systems.
   (2) Renewable and nonrenewable sources.

4. **To provide information about conservation.**
   a. Rationale for conservation.
   b. Conservation techniques.

5. **To prepare people for potential energy supply disruptions.**
   a. To anticipate potential disruptions.
   b. To make contingency plans.
   c. To participate in the public decisionmaking process.

6. **To prepare people to be energy-conscious in their careers.**
   a. Energy-related occupations.
   b. Other occupations.

A comprehensive energy education program contains numerous interrelated components that can be introduced as basic concepts and can be carried to increasing levels of complexity. While energy concepts can be taught in specialized courses, it is not necessary to isolate energy education as a separate discipline; instead, it can be infused into a wide range of existing curricular subjects at virtually all grade levels. The important consideration is that students develop competencies associated with the above list of objectives, regardless of instructional organization. (For a more extensive discussion of the content of energy education and implementation guidelines, see the companion document, *Energy Education: Why, What and How.)*

Why Is Energy Education Necessary?

Historically, education in the United States has had both individual and societal goals: to prepare students to realize their individual potentials and to participate responsibly in society as citizens, workers, consumers and family members. While an educated person requires such skills as reading, writing and arithmetic, fulfilling our traditional educational goals requires

more than these basic tools. An educated person also needs a sense of civic responsibility, decisionmaking skills and factual information upon which to base both individual and group action. And, for knowledge to meet contemporary demands, curricular content must relate to an evolving societal context.

Within the last 10 years, energy has become central to the national consciousness and to individual expectations. Traditional assumptions regarding continual improvement in material well-being are being challenged by unpredictable supplies and unprecedented costs for the energy upon which the American lifestyle is based. With respect to fossil fuels, the United States is experiencing a painful transition from abundance to possible scarcity, from cheap to expensive and from national independence to dependence – and perhaps back again. With respect to alternate energy sources, people are polarized by controversy over nuclear safety and are confused by conflicting claims over the potential costs and benefits of solar energy. Meanwhile, nobody is immune from the ravages of an inflationary economy which has been exacerbated by spiraling energy costs. Meeting the multifaceted challenge that the energy transition presents requires an informed citizenry capable of making responsible decisions about the development and use of alternative energy supplies having various economic, political, social and environmental consequences. Such a requirement suggests that energy be considered a basic theme throughout the formal (in-school) and informal (out-of-school) education systems, as energy issues are immediate, serious and pervasive.

Why Is Energy Education Policy Useful?

A policy is a principle or set of principles designed to guide subsequent decisions and actions. Policy guidelines set priorities, determine the allocation of resources and help to effectuate education reform. Policies can be explicit or implicit, official or assumed. They can be of a general supportive nature or can specify in detail those actions, i.e., programs, necessary to implement the policy intent. Policies can establish mandatory requirements or make optional recommendations. Formal policy is issued in the form of a statement, directive, statute or briefing. The selection of an appropriate format depends upon specific goals and available resources.

Policies supportive of energy education can do any or all of the following:

1. **Indicate a high level of official commitment to the goals and objectives of energy education, thereby encouraging and accelerating the process of program development and implementation at the state and local levels.**

2. **Provide guidance for developing and implementing energy education programs.**
   a. Philosophical guidance (goals and objectives).
   b. Programmatic guidance (content and sequence).
   c. Assessment guidance (needs determination and program evaluation).

3. **Provide the basis for appropriate support and assistance.**
   a. Financial support.
   b. Technical/informational assistance.
   c. Staff training.
   d. Materials.

4. **Influence behavioral changes.**
   a. Through provision of incentives (rewards).
   b. Through regulation (required courses and/or competencies).

5. **Define responsibilities of and relationships among involved agencies and individuals, thereby avoiding needless duplication of efforts and/or omissions.**
   a. Through cooperative agreements.
   b. Through assignments consistent with capabilities and resources.

6. **Encourage linkages.**
   a. Among agencies (education, energy, natural resources, etc.).
   b. Among sectors (education, government, business, industry, labor, etc.).

c. Between school and community and among various education settings.
d. Among various levels of schooling.
e. Among subject areas.

Why State-Level Policy?

Education in the United States is ultimately a state responsibility, with considerable authority delegated to local school boards acting in compliance with state guidelines. While the federal government has assumed an education role in areas of national concern, the current political and fiscal climate connotes a decline in federal support for and regulation of education. Concomitantly, state responsibility for funding education programs has grown in the past decade, and that trend is expected to continue throughout the 1980s.[1]

Concern for productive utilization of public funds suggests that increased state involvement, often in the form of technical assistance to facilitate local district capacity building, may follow increased state support. Therefore, the importance of state-level commitment to energy education in terms of formal policy is important. For, the absence of explicit policy is also a form of policy – generally a policy of neglect.

Why Local-Level Policy?

Effective policy is a guide to action. Without action, a policy does not serve its intended purpose. In education, learner involvement constitutes the action, the ultimate goal of an education policy statement.

Within the broader parameters of state energy education policy, a local education agency can formulate and implement its own energy education policy. Policy framed at the local level serves several needs. First, it incorporates the thinking of local professionals, thereby enhancing their involvement and assuring that the policy meets the district's unique needs. Second, it is an

[1] See Allan Odden and John Augenblick, *School Finance Reform in the States: 1981* (Denver: Education Commission of the States, 1981).

expression of local commitment. (An absence of policy at the local level, even where one exists at the state level, can also be perceived as a policy of neglect.) Finally, its proximate power infuses the issue with a sense of immediacy and accountability, influencing local professionals to act.

Imbued with the power delegated by the state and with an understanding of their specific needs, local policymakers reach through the classroom door and touch the child. In so doing, they make state policy more effective.

II. The Policy Development and Implementation Process

Who Makes Policies Concerning Energy and Education?

The executive, legislative and judicial branches of government set official state policy. However, their influence is often tempered by such constraints as fiscal limitations, political conflict, public opinion, lack of consensus on education priorities, and local implementation variables.

In addition to the governor, likely state-level energy education policymakers from the executive branch include directors or other officials from the state energy office, state education agency and department of natural resources. Policymaking boards, including the state board of education and the public utility commission, also have the authority to develop policy related to energy education. With respect to legislative involvement, any interested legislator can initiate measures that directly or indirectly affect energy education. In practice, however, energy education policy is most often set by members of education committees, energy committees, environmental or natural resources committees, budgetary and appropriations committees. While judicial intervention is less common in energy education, it can be an important factor in interpreting policy, legislation and regulations and in resolving related conflicts.

Local officials influence state-level education policy in two important ways: they make recommendations concerning formal policy, and their implementation efforts determine the effectiveness of such policy. While federal and state policymakers often envision having a large degree of control, which they expect to yield programmatic uniformity, evidence suggests that the implementation process is too complex for such a perspective. Instead, policymakers must learn to combine hierarchical control with delegated control, allowing program implementers to exercise legitimate responsibility for their actions.[2] Policy framers can

[2] Richard F. Elmore, *Complexity and Control: What Legislators and Administrators Can Do About Implementing Public Policy* (Washington, D.C.: National Institute of Education, 1980).

learn much from those persons charged with program implementation, and the policies developed cooperatively have a greater chance of being operationally feasible, better understood and more acceptable to education practitioners. Furthermore, policies that acknowledge the authority of local practitioners – and allow some discretionary interpretation – tend to be less complicated to administer.

Local officials who develop or influence state-level energy education policy are often the counterparts of state policymakers. They include such persons as mayors, city managers and directors of municipal departments, as well as local boards of education, city councils, utility boards and other commissions. Teachers, administrators, parents and students, as individuals or members of organizations, also can participate in energy and education policymaking.

Oftentimes the policy adoption process is initiated by groups or individuals who lack official political authority but who are nevertheless able to exert pressure on public officials. Among those most likely to affect state policy toward energy education are citizen groups, interested individuals, representatives of business and industry (including but not limited to utility companies) labor organizations, media representatives and other special interest groups.

While policy can be formulated and/or adopted by a variety of actors, effective policy tends to be developed by a coalition of decisionmakers, program implementers and representatives from the target population. This combination helps to ensure that policy is politically and publicly acceptable, administratively feasible and programmatically sound. Forming a coalition of interested persons representing all relevant perspectives is often a prerequisite to productive policy formulation, implementation and evaluation.

What Is the Policy Development Process?

Policymaking is a form of decisionmaking and, as such, it has been described by a variety of process models. The two principal policy development models are rational planning and incremental change. In its most basic form, the rational planning process requires

problem identification, delineation of alternatives, recommendation of the best alternative and post-implementation evaluation. The process is formally structured into stages that are roughly sequential, but it allows for simultaneous activities and successive iterations of steps.[3] According to Charles Lindblom's description, policy is determined incrementally through a process of mutual adjustment in the political arena.[4] The advantages of a limited number of alternatives are weighed, and change is gradual through a series of successive approximations. Although these two models are often perceived to be in opposition, they need not be so. If political and economic feasibility are the primary criteria for selecting among options, then the rational planning model augments the incrementalist perspective by systematizing or structuring it, focusing more attention on the delineation of options and providing decisionmakers with useful background information, thereby better preparing them to anticipate the results of their actions.

The following process model is basically a rational planning model. It is composed of interrelated actions that are not strictly sequential due to the possibility of simultaneously accomplishing several tasks and the potential need to repeat steps if suggested options prove unacceptable. Nevertheless, the process can be separated into nine basic steps. The steps are spelled out in some detail in the hope that they can assist persons developing policy, regardless of the extent to which any or all are followed. Economic and political feasibility are explicitly addressed as selection criteria so that the model might realistically assist

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[3]Discussions of a rational planning process for policy development can be found in Yehezkel Dror, *Design for Policy Sciences* (New York: American Elsevier Publishing Co., Inc., 1971); Dror, *Public Policymaking Reexamined* (San Francisco: Chandler Publishing Co., 1968); Erich Jantsch, ed., *Perspectives of Planning* (Paris: Organisation for Economic Co-operation and Development, 1969); Jantsch, *Technological Planning and Social Futures* (London: Associated Business Programmes, 1972); and Lawrence D. Mann, "Planning Behavior and Professional Policymaking Activity," *Planning Theory in the 1980's: A Search for Future Directions*, Robert W. Burchell and George Sternlieb, eds., (New Brunswick, N.J.: Rutgers University, 1978), pp. 113-149.

[4]"The Science of Muddling Through," *Public Administration Review*, Spring 1959, pp. 79-88.

policymakers to develop appropriate policy in energy education or other areas.

While not strictly part of policymaking, implementation is included in the process because the way in which a policy is or is not carried out shapes the meaning and impact of that policy. Furthermore, implementation is a prerequisite to evaluating the policy and determining the need for revision, the last step of the policymaking process.

1. **Determining goals and objectives**. Policy is not developed unless there is a felt need or a gap between the present and desired situation. Not only must the gap – or problem – be defined in concrete terms, but underlying assumptions and values must be identified and the related knowledge base reviewed as well. Furthermore, the population for which corrective programs will be targeted must be specified. For example, the problem might be defined as insufficient priority given to energy education by state agencies, absence of cooperation among officials or a lack of understanding about specific energy concepts and/or issues among one or more segments of the population. Both broad, general goals and more specific, operational, measurable objectives should be explicitly stated. Multiple goals should be prioritized according to some rational design, as determined by relative urgencies, financial constraints and political realities.

2. **Data collection and analysis**. Background information related to the identified need must be collected and analyzed in order to better understand the problem prior to searching for corrective policy. Quantitative and qualitative data serve to build the knowledge base of policymakers and their advisors, thereby aiding in the conceptualization of potential ways to meet the goals and objectives identified in the previous step. While some initial study must precede the preparation of alternative policies, data collection and analysis is an ongoing process; using recent and relevant information previously unknown or unavailable must not be precluded. And, additional data needs may develop in subsequent steps of the policy development process. However, care must be taken to limit data collection and evaluation to meet the practical constraints posed by time and resources. Judgment is required to know when enough information has been considered to begin to develop and compare policy alternatives.

Not only is a firm grasp of the salient facts and their implications necessary to develop good policy, but it is also a tool that members of the policymaking coalition must be prepared to use in justifying their recommendations and actions.

3. **Preparing a set of alternative policies.** As alternative policy-level approaches to meeting the identified need can be compiled using a variety of methods, including *research* (examining existing policies, legislation and proclamations issued in other jurisdictions); *brainstorming* (during which time members of the policy development coalition list a variety of potential policies designed to achieve their goals and objectives); and *solicitation of suggestions* from interested groups and individuals. The role of creativity in any or all of these methods should not be ignored if innovative solutions are to be considered.

There is no recommended number of options to weigh. However, care must be taken to insure that a variety of options is included and that the number of alternatives is limited to a "reasonable" amount that can be properly evaluated. If a viable policy is to be developed, the search for alternatives cannot stop before finding one or more initially appearing to be good, as well as feasible.

4. **Predicting the significant impacts of the various alternatives.** Most impacts can be categorized as costs or benefits if these terms are defined to include negative and positive impacts of both an economic and non-economic nature.

Costs can be separated into two categories: start-up and operating. Economic costs include more than financial requirements. Also important are needs for personnel and other resources. Non-economic costs can be environmental, social, political, organizational, programmatic, etc. (In this case, programmatic costs are the various curricular adjustments necessary to incorporate energy education into the instruction program.)

The direct benefits of energy education are primarily those associated with our notion of an "educated person," as explained in the first section of this document. Indirect benefits relate to the impact of subsequent actions taken and decisions made by energy literate persons. These indirect benefits can be economic, political, social or environmental.

Not only must a selected policy fall within the parameters established by politically acceptable costs and benefits, but relative costs and benefits are the principal criteria for selecting among policy alternatives. Therefore, the expected costs and benefits of each alternative must be listed as completely as possible, with care taken to predict possible side effects. The time frame during which these costs and benefits will accrue must also be considered: immediate, short range, middle range and long range. While distinctions between short, middle, and long are somewhat arbitrary, generally short range is one to two years, middle is two to ten years, and long range is beyond ten years. Given the frequency of elections that determine the fate of many policymakers, political officials tend to emphasize immediate and short range impacts.

5. **Comparing the predicted benefits and costs of alternatives and identifying the "best" ones.** Consistent criteria must be used to compare all viable alternatives. Whether a quantitative rating system or a qualitative ranking system is used for each criterion, the role of values cannot be overlooked. Making values explicit often provides protection against charges of undue bias. Regardless of the specific evaluation criteria utilized, alternatives must be compared according to how well they meet the predetermined goals and objectives within the constraints posed by time, resources and other practical considerations.

6. **Selecting the "best" alternative.** After comparing options, it may be advisable to create one or more "composite alternatives" deliberately designed to combine desirable characteristics present among the original list of alternatives. Assuming that at least one of the policy alternatives (including the composites) meets the predetermined goals and objectives and is not outside the boundaries posed by practical constraints, then the "best" alternative can be selected. The best alternative is that which ranks highest according to the quantitative and/or qualitative criteria utilized in the fifth step. A satisfactory alternative must be reasonable and feasible. Furthermore, the policymaking body must be prepared to provide adequate resources (funds, personnel and information) to insure that it has a good chance of success.

Prior to formal selection, it is usually advisable to publicize the potential policy in order to solicit constructive criticism. Such feedback can have two important advantages: first, it can suggest

timely adjustments or revisions that greatly enhance the effects of the new policy and second, it can influence the policymakers to reject the initial selection in lieu of one having broader popular support.

The official adoption process varies. Executive order, board proclamation and legislative action all have their appropriate adoption procedures. The proper format will depend upon the preference of the key policymaker or policymaking body and on the content of that policy.

7. **Publicizing the selected policy**. If a policy is to be more than a meaningless gesture, people must know about it. Individuals and groups having a role to play in the implementation process, the target audience of the policy-related actions and the general public should all be informed of the policy. Perhaps the most neglected recipients of state-level education policy information are teachers and administrators.[5] Yet energy education programs cannot and will not be implemented without the full support and cooperation of school administrators and the commitment and understanding of those teachers who are ultimately responsible for affecting educational change. Dissemination activities must also be targeted for the general public and for other education policymakers, all of whose support is vital to the allocation of those resources necessary to make energy education policies successful.

8. **Executing the policy**. Successful policy execution requires that the policy in question be clear with respect to purpose. As policy is often written in the form of a general statement, rules, regulations and/or program guides are usually necessary to translate a policy statement into action consistent with its underlying purpose. The policy and/or accompanying rules and regulations must specify appropriate and effective means for accomplishing the policy purpose and provide required resources. Perhaps most important to effective policy execution is the clear assignment of responsibility and authority for every aspect of the policy. Furthermore, it is imperative that a mechanism be specified for coordination with related activities in various agencies.

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[5]Committee on Youth Education for Citizenship, "How State Mandates Affect Curriculum," *Educational Leadership*, January 1980, pp. 334-336.

If the new policy provides for the infusion of energy education into the existing curriculum, guidelines specifying what is to be done in various subject areas at different grade levels are necessary. If new materials are to be provided, instruction regarding the use of these materials must also be provided, perhaps through such existing delivery mechanisms as teacher training institutions, state and local school district inservice programs, professional associations, or state energy offices.

9. **Evaluating the adopted policy and making revisions, as appropriate.** Provision should be made for a formal evaluation process to ascertain the extent to which the policy is achieving specified objectives. Components of an evaluation process include a timetable, assignment of responsibility and authority, and adequate resources to carry out required tasks. In addition to judging a policy by associated outcomes, it should also be evaluated in terms of clarity, comprehensiveness, internal consistency, political viability and economic feasibility. Evaluators should be alert to unanticipated side effects and should welcome comments from parties participating in or affected by the policy in question.

Whatever the criteria, in practice the quality of policy is difficult to appraise, for its ultimate form and impact are influenced by various external factors. For this reason, it is generally advisable to field test a new education program prior to wide-scale implementation. And, even after wide-scale implementation, there is need for a continuous evaluation and revision mechanism.

Modification often follows evaluation. It provides an opportunity for improving the existing policy's ability to meet identified needs and it allows policymakers to react to alterations in need or circumstance, including changes in available resources and revisions in related state or federal programs.

What Are the Obstacles to the Policy Development Process?

A policy will be neither formulated nor implemented without the interest and commitment of one or more policymakers. The likelihood of creating a meaningful policy generally increases in direct proportion to the extent that these factors (interest and

commitment) are attributes of key decisionmakers. However, conditions beyond the control of policy setters often impede the process.

The most common impediments are insufficient fiscal and human resources, as well as an inadequate understanding of the political environment in which a policy must be developed. And, in an inflationary economy characterized by public pressure for limitations on government spending, these two obstacles cannot be ignored. Only those programs felt to be of the highest priority will survive the fierce competition over limited resources. (If funds are not allocated for a program related to policy, then that policy has, in effect, been overriden by another policy – one of constraint.)

Another obstacle is the lack of consensus on education aims, a fact that oftentimes becomes apparent only after a program is implemented. For example, on a superficial level, many people support the incorporation of energy education into the school curriculum. But, after a curriculum is adopted, proponents and opponents of various energy alternatives become outspoken critics of the "lack of objectivity" that can be read into virtually any materials.

When a program implemented in response to a policy fails, not only is the policy foundation called into question, but subsequent education policy development can be blocked as well. Yet, the very complexity of the educational process makes it difficult to isolate causes of program failure. (Causes include such diverse factors as instructional materials, teaching methods, prior student preparation, student and teacher motivation, parental cooperation and instruction setting.) Therefore, it is sometimes necessary to implement an innovation to see its inherent weaknesses. This suggests that when dealing with innovation it is often advantageous to begin with a relatively simple, flexible and limited policy, test it, and – as necessary – revise it and augment it.

III. Important Issues to be Considered in Developing Energy Education Policies and Related Programs

There is no generally agreed upon definition of energy education. While most educators consider the topic to be multidisciplinary, with content applicable to most subjects at most grade levels, the specific components of a good energy education program vary. Therefore, a policymaking process must begin with defining energy education. With respect to program development, it is imperative that decisions are made regarding objectives and expected outcomes of the prospective energy education plan.

A closely related issue is the decision between infusing energy concepts into existing topics of instruction or developing separate courses. While both approaches have merit, pragmatism often suggests the infusion model, as displacement of other curricular topics is minimized and the cost of materials and other items may be less as well. However, separate courses are often preferred, particularly in higher grade levels, when learning often becomes more specialized, and in vocational programs for energy careers. When infusion is favored, decisions must be made regarding where to place specific energy education components into the curriculum: grade level, department, course.

Regardless of how energy topics are to be added to the curriculum, a critical question not to be overlooked is how to encourage and assist teachers to update their knowledge and understanding of energy issues and to include energy topics in their teaching.

Another important consideration is whether or not a new program or new materials must be created. Many state agencies, local school districts, organizations and private entrepreneurs have developed a myriad of programs and materials. A decision must be made whether or not existing materials can be adopted or adapted to meet the needs of an individual state or locality. Assuming economic efficiency is a major concern in selecting materials, the following steps should be followed. First, locate existing materials

that might address the identified objective or objectives. Second, evaluate collected materials in terms of satisfying state-specific and/or local-specific needs, taking care to identify any gaps. Third, decide whether or not existing materials can be adopted as is or adapted to meet state and/or local objectives. (If adoption or adaptation is possible, these options are preferable from an economic perspective.) Fourth, create new materials only if they are necessary or if the actual creation process is judged to be a crucial step in successful program implementation. Frequently, existing materials adequately address general issues, but adaptation is necessary to make them applicable to the regional conditions.

The potential relationship between energy education and conservation in school facilities should also be examined. Energy audits, efficient operating procedures, plant maintenance and building modifications all present education opportunities for school personnel (administrators, teachers, ancillary services and support staff), pupils and the general public. Not only is coordinating operational and instructional activities a cost-effective way of implementing an energy conservation program, both from an education and facilities management perspective, but the success of each component can be enhanced in the following ways. First, persons responsible for building efficiency will better comprehend the justification for their actions. Second, users of school buildings will be more likely to understand and help implement energy-conscious maintenance and operational procedures. Third, public understanding of practical energy conservation techniques will be enhanced.

Perhaps the overriding issue to address is how energy education can be introduced into the curriculum during an inflationary period characterized by state, local and federal budget limitations. When persons understand the ways in which the American lifestyle depends on huge, low-cost energy supplies and realize the integral connection between energy prices and inflation, then they will certainly expect the schools to prepare students for a future that might be characterized by changes in energy sources, availability and/or prices. When viewed in this vein, energy education can be justified as an investment to help reduce energy consumption and costs in the future.

While some additional costs are unavoidable whenever curricular revision is undertaken, they can be minimized by incorporating

energy concepts into existing courses, utilizing free or low-cost teaching modules and focusing on energy during regular inservice programs. While textbook publishers have not been in the forefront when it comes to infusing energy concepts and examples into related course materials, state and local officials and professional organizations can influence textbook content by specifying their needs and utilizing energy coverage as a primary selection criterion. However, if energy is to become an education priority, then perhaps one or more other topics must be relegated to a place of lesser importance, thereby providing a justification for the reallocation of resources to energy from other subjects as determined by state and local education policymakers.

While the above list of policy development and implementation issues is not exhaustive, it does contain items that impact virtually any energy education program. There is no one "best" or "correct" approach to any of these issues. Instead, policymakers have to base their decisions on state and local needs and on the availability of resources that can be targeted for energy education.

ECS Energy Education Task Force (cont.)

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The Education Commission of the States is a nonprofit organization formed by interstate compact in 1966. Forty-eight states, American Samoa, Puerto Rico and the Virgin Islands are now members. Its goal is to further a working relationship among governors, state legislators and educators for the improvement of education. This report is an outcome of one of many commission undertakings at all levels of education. The commission offices are located at Suite 300, 1860 Lincoln Street, Denver, Colorado 80295.

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